



18103602

QP CODE: 18103602

Reg No : .....

Name : .....

**BBA DEGREEE(CBCS)EXAMINATION, DECEMBER 2018**

**First Semester**

Bachelor of Business Administration

**Complementary Course - BA1CMT03 - FUNDAMENTALS OF BUSINESS MATHEMATICS**

2018 Admission only

49A27A70

Maximum Marks: 80

Time: 3 Hours

**Part A**

Answer any **ten** questions.

Each question carries **2** marks.

1. If  $A = \{a, b, c, d\}$ ,  $B = \{c, d, e, f\}$  and  $C = \{e, f, g, h\}$  find  $(A \cup B) \cup C$  and  $A \cup (B \cap C)$
2. Define ordered pairs.
3.  $x \propto y^2$  and  $x=15$  when  $y=4$ . Find the relation between  $x$  and  $y$  and also find  $x$  when  $y=8$
4.  $x^2$  varies inversely as  $y^2$  and  $x=4$  when  $y=25$ . Find the relationship between  $x$  and  $y$  and also find  $x$  when  $y=36$  ?
5. How many words can be made out of the letters of the word PERMUTATION taken all together ?
6. In how many ways 6 people be seated around a table .
7. Define  $nC_r$ .
8. Find two matrices  $A$  and  $B$  such that the following condition is satisfied  $A + B = 3I$ , but  $A \neq I, B \neq I$
9. Given  $A = \begin{bmatrix} 2 & 3 & 5 \\ 5 & 4 & 2 \\ 2 & 5 & 9 \end{bmatrix}$ ,  $B = \begin{bmatrix} 5 & -9 & 6 \\ 2 & 3 & -5 \\ 4 & 9 & 7 \end{bmatrix}$  Evaluate  $A - B$
10. Find the rank of  $\begin{bmatrix} 3 & 6 \\ 8 & 1 \end{bmatrix}$
11. Define non-singular matrix.
12. State the formula for determining the inverse of a matrix

(10×2=20)





**Part B**

Answer any **six** questions.

Each question carries **5** marks.

13. Write down all the power set of  $U = \{a, b, c, d, e\}$
14. Let  $A = \{m, n, o, p\}, B = \{o, p, q, r\}, C = \{p, r, s, t\}$ . find  
 1)  $(A \cap B) \cap (A \cap C)$   
 2)  $A \cup (B \cap C)$
15. Compute the rational number corresponding to 1.375375.....?
16. If  $\frac{a}{b} = \frac{c}{d} = \frac{e}{f}$ , then prove that each ratio is equal to  $\frac{7a+3c-4e}{7b+3d-4f}$ .
17. Find the number of ways in which 6 boys and 4 girls may be arranged in a row if no two of the girls are to be together.
18. Prove that  $\log\left(\frac{81}{8}\right) - 2\log\left(\frac{3}{2}\right) + 3\log\left(\frac{2}{3}\right) + \log\left(\frac{3}{4}\right) = 0$ .
19. Let  $B = \begin{bmatrix} 5 & -2 \\ 4 & -3 \end{bmatrix}, C = \begin{bmatrix} 1 & 2 \\ 6 & -3 \end{bmatrix}$   
 find  $A = \begin{bmatrix} x & y \\ z & w \end{bmatrix}$  such that  $2A = 3B - 2C$
20. Verify that  $A = \frac{1}{2} \begin{bmatrix} 1 & -1 \\ 1 & 1 \end{bmatrix}$  is orthogonal?
21. Verify the relation  $A(\text{adj } A) = |A|I$  for the matrix  $A = \begin{bmatrix} 1 & 0 & -1 \\ 3 & 4 & 5 \\ 0 & -6 & -7 \end{bmatrix}$

(6×5=30)

**Part C**

Answer any **two** questions.

Each question carries **15** marks.

22. Let  $A = \{a, b\}, B = \{p, q\}$  and  $C = \{q, r\}$ . Find  
 1)  $A \times (B \cup C)$   
 2)  $(A \times B) \cup (A \times C)$   
 3)  $A \times (B \cap C)$   
 4)  $(A \times B) \cap (A \times C)$   
 5)  $B \times (A \cup C)$





23. (a) The present age of a father is twice that of his son .Eight years hence their ages would be 7:4.Find the son's present age?

(b). Find  $\frac{a}{c}$  if  $a : b = 4 : 5$  and  $b : c = 3 : 7$ ?

24. (1) If  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$   $B = \begin{bmatrix} 1 & 0 \\ 2 & -3 \end{bmatrix}$   $C = \begin{bmatrix} 1 & -1 \\ 0 & 1 \end{bmatrix}$ , show that  $A(B + C) = AB + AC$

(2) If  $A = \begin{bmatrix} 3 & 1 & 2 \\ 2 & 0 & 1 \\ -2 & 5 & -9 \end{bmatrix}$ , verify  $(AB)^T = B^T A^T$

25. Solve by matrix method the system of equations  
 $x+y=0$  ,  $y+z=1$  ,  $z+x=3$

(2×15=30)

